MP-236 (APPENDIX)

INCOME VARIATIONS DUE TO YIELDS ON DRYLAND COTTON FARMS ON THE HIGH PLAINS OF TEXAS

TEXAS AGRICULTURAL EXPERIMENT STATION

APPENDIX

The material in this appendix contains the details on the determination of the costs of production in Table 2. It will be of interest to other research workers and technicians.

Preharvest

Typical operations on dryland farms of the area for cotton and grain sorghum are shown in Table 1. Materials and their cost are also shown in Table 1. This information is based on 1955 practices and prices. Labor costs for hoeing are based on the 1955 wage rate, 65 cents per hour. The delinted and treated cotton seed was valued at 6.5 cents per pound. Because of variations in the materials, it is not possible to report the quantities of insecticides used; however, the average number of insecticide applications per acre reported in 1955 was two, and the cost of the chemicals used was estimated at 50 cents per acre. for each application. Fuel costs are based on a consumption rate of 4.2 gallons of butane per hour of tractor operation and price, 8 cents per gallon. The cost of oil and lubricant is estimated at 8 percent of fuel costs.

Except for hand hoeing and chemical control of insects, the production practices for dryland grain sorghum are almost identical to those used for dayland cotton.

Harvest

Table 2 shows the typical harvesting methods and cost for cotton and grain sorghum for owners and tenants of the various sizes of farms. Harvesting practices for cotton are assumed to be different not only from the standpoint of size of farm but also with respect to tenure status.

TABLE 1. PREHARVEST CROP REQUIREMENTS AND COSTS FOR PRODUCING COTTON AND GRAIN SORGHUM IN THE HIGH PLAINS, 1955

Cotton

Operation	Times Over	Hours per Acre		Material Used	Cost per Acre
		Man	Tractor		
Cut Stalks	1.00	0.13	0.13	----	----
List or Bed	1.06	0.32	0.32	----	----
Knife	1.50	0.31	0.31	----	----
Plant	1.38	0.28	0.28	Seed	$1.82
Knife	2.00	0.42	0.42	----	----
Cultivate	2.44	0.56	0.56	----	----
Hand Hoe	1.35	2.90	----	----	1.88
Spray or Dust	2.00	0.25	0.25	Chem.	1.00
				Fuel	.88
Total	----	5.17	2.22	---	$5.51

Grain Sorghum

Cut Stalks	1.00	0.14	0.14	----	----
List or Bed	1.04	0.31	0.31	----	----
Knife	1.33	0.28	0.28	----	----
Plant	1.25	0.29	0.29	Seed	$ .35
Knife	1.38	0.29	0.29	----	----
Cultivate	1.66	0.38	0.38	----	----
				Fuel	.62
Total	----	1.69	1.69	---	$ .97

Where feasible, machine harvesting of cotton with cotton strippers considerably reduces the farm operator's cost of harvesting. However, due to the absence of a completely effective defoliation process and lack of experience with mechanical strippers, complete mechanization of cotton harvesting is far from a reality. Also, on deep sandy soils use of mechanical strippers breaks up the "crust" and leads to wind erosion problems. Therefore, at least a portion of the cotton on each farm is normally harvested by hand.

On tenant operated farms one-fourth of the cotton lint and seed is paid as rent, with ginning expenses shared in the same ratio. All other operating costs are borne by the tenant. Due to the possibility of grade differentials, with incorrect use of stripper, returns to a landlord are slightly lower when cotton is harvested by machine as contrasted with hand harvesting. Therefore, there is a tendency to use a smaller proportion of mechanical harvesters in relationship to hand harvested cotton on tenant operated farms.

Grain sorghum harvesting practices on the 240 and 480 acre farms are usually custom hired, since farms of this size are not normally equipped with combines. The most common custom combine rate in the Southern High Plains in 1955 was $2.50 per acre for dryland grain sorghum regardless of the yield per acre. Since one-third of the grain sorghum harvesting expense is borne by the landlord, the tenant's per acre cost of custom combining is approximately $1.67 on the 240 and 480 acre farms.

The 640 acre farms are normally equipped with combines, so the combining operation on this size of unit is usually performed by the operator. The grain sorghum harvesting cost for the owner operator of the 640 acre

TABLE 2. THE METHOD AND COST OF HARVESTING FOR COTTON AND GRAIN SORGHUM ON DRYLAND FARMS IN THE HIGH PLAINS, 1955

Cotton

Farm Size Acres	Tenure Status	How Harvested		Cost per Pound of Lint
		Machine	Hand	
240	Owner	50%*	50%	$.09
240	Tenant	30%*	70%	.12
480	Owner	80%	20%	.06
480	Tenant	40%	60%	.09
640	Owner	80%	20%	.06
640	Tenant	40%	60%	$.09

Grain Sorghum

Farm Size Acres	Tenure Status	How Harvested	Harvesting Cost per Acre	Hauling* Cost per Bu.
240	Owner	Custom Combined	$2.50	$.06
240	Tenant	Custom Combined	1.67	.06
480	Owner	Custom Combined	2.50	.06
480	Tenant	Custom Combined	1.67	.06
640	Owner	Combined	.21**	.06
640	Tenant	Combined	$ .14**	$.06

*Custom hired

** Includes the cost of fuel only.

farms is assumed to be 21 cents per acre. This is the fuel and oil costs incurred during the combine operation. On this basis the tenant's harvesting cost would be two-thirds of 21 cents or 14 cents per acre:

Hired Labor Expenses

Crop production requirements on the 240 and 480 acre farms are such that the operators of these units normally need not employ additional labor for regular farm work if the operator's full time is deveted to the farm. For these sizes of units the operations of hand hoeing, cotton and grain sorghum harvesting, and hauling are usually custom hired. It is assumed that with a four row tractor the operator can perform all other necessary operations.

The labor requirements for cotton and grain sorghum on the 640 acre farms are of sufficient magnitude that the operators for these sizes of units usually employ approximately three months of additional labor for tractor operation and general farm work. Schedules indicated that labor hired for this purpose was usually paid approximately $200 per month.

Annual Repairs

The cost of annual repairs to improvements did not vary with the size of farm. Therefore, no attempt was made to segregate the cost of annual repairs of improvements on the basis of farm size. Annual repairs on equipment did vary with farm size with the larger farms having larger costs.

Property Taxes

Estimates of property taxes were obtianed from Texas Agricultural Experiment Station Progress Reports 1715 and 1870. These estimates were adjusted at the suggestion of the author of the Progress Reports to represent current

taxation figures for the typical dryland cotton farms of the Southern High Plains Area. Both personal property taxes and real estate taxes are incurred by the owner-operators of the various sizes of farms.

Income and Self-employment Taxes

Income and self-employment taxes for any particular year depended upon the net farm profits for that particular year. The total operating expense plus the depreciation allowed on improvements and equipment (only depreciation of equipment items were allowed tenants) were taken from gross profits to determine net profits to estimate the amount of income tax.

The computation of income and self-employment taxes for each year in the 41 year period was based on the instructions of the 1956 Form 1040, "Schedule of Farm Income and Expenses," published by the Internal Revenue Bureau. The assumption of 4 dependents was made for each farm size.

Family Living Expense

Family living expense was derived from data obtained from the United States Department of Agriculture, Farmers Home Administration. The average family living expense was computed from 689 families in 9 counties of the Southern High Plains Area who participated in Farmers Home Administration loans and who kept adequate records for the 1955 crop year. The average family living expense includes cash expenses incurred for food, clothing, personal care, health, household operations, house repair and sanitation, school, church, recreation, and personal insurance. The annual family living expense of the 689 families ranged from a low of $324 to a high of $4,040, and the average was $1,678. The average is used to represent the annual family living expense which is deducted from the farm firm-household unit's net profit for any given year to derive the reinvestment income for that particular year.